

IE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Cheung, et al.

Serial No.: 10/686,486

Confirmation No.: 8014

Filed:

October 15, 2003

For:

APPARATUS FOR ELECTRO , CHEMICAL DEPOSITION OF COPPER METALLIZATION WITH THE CAPABILITY OF IN-SITU THERMAL ANNEALING

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

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Group Art Unit: 1753

Examiner:

Unknown

CERTIFICATE OF MAILING

37 CFR 1.8

I hereby certify that this correspondence is being deposited on 14123, 2004 with the United States Postal Social Section 2004 Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450 Alexandria VA 22313-1450.

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

The Applicants, and the Attorney who signs below on the basis of the information supplied by the inventor and the information in his file, submit herewith patents, publications, or other information of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

While the information submitted in this Supplemental Information Disclosure Statement may be material pursuant to 37 CFR § 1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is prior art for this invention unless specifically designated as such.

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In accordance with 37 CFR § 1.97, this Supplemental Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other possibly material information as defined under 37 CFR § 1.56(a) exists.

The patents and/or publications submitted herewith are set forth on the attached Form PTO-1449.

If the sum of \$180.00 is due under 37 CFR § 1.17(p) pursuant to § 1.97, the Commissioner is hereby authorized to charge this fee, and any other fee necessary to make this submission timely, to the Deposit Account No. 20-0782/AMAT/3421.C2/NAN.

Respectfully submitted,

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AMAT/3421.C2/CMP/ECP/RKK

APRIL 23, 2004

Approved for use through 07/31/2006. OMB 0651-0031 U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE tersons are required to respond to a collection of information unless it displays a valid OMB control number. Under the Paperw APR 2 6 2004 10/686,486 Substitute for form 1449A/PTO Application Number SUPPLEMENT OCT. 15, 2003 Filing Date First Named Inventor CHEUNG, ET AL. INFORMATION DISCLES Group Art Unit 1753 STATEMENT BY APPLICA **Examiner Name** UNKNOWN

Attorney Docket Number

Submission Date

			U.S. PATENT	DOCUMENTS		
Examiner	Cite	Document Number	Publication Date Name of Patentee of R	Name of Patentee or	Pages, Columns, Lines, Where	
Initials*	No.1	Number-Kind Code ^{2 (if known)}		Applicant of Cited Document		Applicant of Cited Document Relevant
	A1	US-				
	A2	US-				
	A3	US-				
	A4	US-				
	A5	US-				
	A6	US-				
	A7	US-				
 	A8	US-				
	A9	US-				

		FORE	IGN PATENT I	DOCUMENTS		
Examiner	Cite No.1	Foreign Patent Document	Publication Date	Name of Patentee or	Pages, Columns, Lines,	T⁵
Initials*	No.	Country Code ³ -Number ⁴ -Kind Coode ⁵ (if known)	MM-DD-YYYY	Applicant of Cited Document	Where Relevant Passages or Relevant Figures Appear	
	B1	EP 0 421 735 A2	04/10/1991	KABUSHIKI KAISHA TOSHIBA	-	
	B2	EP 0 881 673 A2	12/02/1998	INTERNATIONAL BUSINESS MACHINES CORPORATION		
	В3	EP 1 037 263 A2	09/20/2000	APPLIED MATERIALS, INC.		
	B4	EP 1 085 557 A2	03/21/2001	APPLIED MATERIALS, INC.		
	B5	JP 4-131395	05/06/1992			
	B6	JP 4-280993	10/06/1992			
	B7	JP 54-148112 W/ENG. ABSTRACT	11/20/1979	NAKAGAWA KK		
	B8	JP 58-182823 W/ENG. ABSTRACT	10/25/1983	NIPPON DENKI KK		
	В9	JP 6-17291 W/ENG. ABSTRACT	01/25/1994	NEC CORP		
	B10	JP 63-118093	05/23/1988	TANAKA ELECTRON INC		
	B11	WO 97/12079	04/03/1997	INTEL CORPORATION		
	B12	WO 99/40615	08/12/1999	SEMITOOL, INC.		
	B13					

Examiner **Date Considered**

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Application Number	10/686,486
Filing Date	OCT. 15, 2003
First Named Inventor	CHEUNG, ET AL.
Group Art Unit	1753
Examiner Name	UNKNOWN
Attorney Docket Number	AMAT/3421.C2/CMP/ECP/RKK
Submission Date	APRIL 23, 2004

		NON PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published				
		COLOMBO, Wafer Back Surface Film Removal, Central R&D, SGS-Thomson Microelectronics, Agrate, Italy, Spin Tech Technology, 6 pages.				
		Semitool Products/Sales from www.Semitool.com Metallization and Interconnect, October 27, 1998, 4 pages.	-			
	-	Verteq from www.verteq.com Welcome to Verteq Online Products Overview, 5 pages.				
		Technologies Corporation from www.laurell.com, 6 pages.				
		SINGER, Nonuniformity of Copper Electroplating Studied, Wafer Processing, Semiconductor International. June 1998, page 70.				
		Tantalum, Copper and Damascene: The Future of Interconnects, Semiconductor International, June 1998, pages 91-98.				
		PITNEY, Ney Contact Manual, Electrical Contacts for Low Energy Uses, October 8, 1974, 19 pages.				
		HOLM, Electric Contacts Theory and Application, Fourth Completely Rewritten Edition, Springer-Verlag, New York Inc., August 21, 1967, 27 pages.				

Date Considered Examiner

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